

THE TREES AND SHRUBS OF THE KANSAS CITY AREA  
WITH A KEY TO THEIR IDENTIFICATION

by

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THE TREES AND SHRUBS OF THE KANSAS CITY AREA,  
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INTRODUCTION

Woody plants, namely, trees, shrubs and lianas, make up an important portion of the native flora of Wyandotte County, and many species have been introduced into that community in the beautification of parks and home grounds. In the writer's capacity of instructor in botany in the Wyandotte High School, he is asked to identify ornamental plants of various kinds and to make recommendations of plantings. Thus it was thought that it might be advisable (a) to learn what woody plants are native to this part of the country and what species have been successful in establishing themselves after having been introduced, (b) to construct a key that might be used by members of his classes or by anyone interested in woody plants to identify the various genera and species to be found in the parks and native woods, and (c) to learn if any species not mentioned by earlier plant explorers could be found. The various species and varieties discovered are arranged by families and their habitats, prevalence, and general characteristics are described in an annotated list later



in this paper.

## HISTORY OF THE REGION

Settlement by Indian Tribes. The area in which this survey was made was originally inhabited by various tribes of Indians who were forced into this region from farther east by more warlike eastern tribes. They occupied the area during the early part of the 19th century but were compelled to move on when the government bought their land and provided a new home for them in the recently created Indian Territory. These tribes were not interested in an existence involving agriculture and as a result they probably were not responsible for the introduction of any plants, much less trees and shrubs.

Explorations. Major Stephen H. Long, under the direction of John C. Calhoun, Secretary of War, with a party of fellow scientists explored the region comprising a part of the present Wyandotte County in 1819. According to Long's reports, "the forests were filled with fallen trees of soft texture, which absorbed much moisture like the linden and cottonwood." He found the mouth of the Kansas river, the Kouzas as he called it, filled with mud, due to high water on the Missouri. He described the valley

as having a very fertile soil, bearing forests of cottonwood, sycamore and other trees interspersed with broad meadows.

The French established fur trading posts at different points in eastern Kansas but were little interested in explorations and left no botanical records.

John C. Fremont made five expeditions through the area, the last one for the purpose of surveying a route for the Kansas Pacific railroad, now the Union Pacific. The explorers were charmed with the beauty of the landscape of hill and valley. On either side of the Kansas river they found trees such as oak, cottonwood, elm, walnut, honey locust, mulberry, hickory, sycamore, ash and along the creeks, the willows.

In his history of Wyandotte County, Morgan (1, p. 13) reported that the earlier settlers found the following trees and shrubs growing in the area: Hackberry, redbush, Kentucky coffee tree, ironwood, hazelnut, persimmon, papaw, wild grapes, blackberry, gooseberry, plums, wild cherries, elderberries, service berries, crab apples, wild roses, dogwood, wild currant, wahoo, buckeye, buck brush, prickly ash, sumac, Indian cherry and hop tree.

Early Settlers. Immediately following the passage of the Kansas-Nebraska bill, May 27, 1854, there was a great

tide of immigration into Kansas. Several causes contributed to this rush for homes in the new territory. The Irish famine of 1847 caused many of these people to seek new homes in the United States. After arriving in this country they sought new homes in the west, due to lack of labor in the east and the high price of land there.

Aid societies in the east were organized to encourage emigration to Kansas where the struggle for occupation was taking place between pro-slavery and anti-slavery forces. It is probable that many of the shrubs not mentioned by Morgan that now grow in this community were introduced by the anti-slavery immigrants from New England, as they, unlike the pro-slavery adherents, came to Kansas to establish permanent homes.

Railroad Construction. In 1863, a steamboat landed at Wyandotte with a locomotive and other railroad equipment. This material was to be used by the Kansas Pacific railroad, which was later to be known as the Union Pacific. A depot was built at the foot of what is now Minnesota Avenue. In November 1864, the first passenger train was run to Lawrence.

The Missouri Pacific was begun on the state line near Kansas City in 1865 and one year later it had reached Leavenworth. Its right of way followed closely along the

Missouri River until it reached Atchison.

The Kansas City, Wyandotte and Northwestern Railway was started in 1885 and was extended through the central part of Wyandotte County to Virginia City, Nebraska. It was operated until after the World War when it discontinued operation and the line was junked. At the present time much of the right of way is furnishing growth for trees and shrubs that are native to this section of the country.

Although these railroads were undoubtedly responsible for the introduction of many plants, there were probably only a few trees or shrubs brought in by this means. (1, p. 441-460).

Highway Construction. Kansas City during the early days was the starting point of several overland routes to the west. As a result the Oregon trail, the Santa Fe trail and the Salt Lake trail were established. During the Mormon exodus to Utah and the Gold rush to California great numbers of people passed through this area because of the easy exit along the Kaw river valley. Undoubtedly, many plants new to the region were introduced by the pioneers of the covered wagon days, but probably most of these were herbaceous and not woody species. The later development of sectional roads, about 1875, and trans-continental highways, probably contributed little to the botanical history of the region in as far as introducing

woody forms is concerned.

## NATURAL FACTORS IN RELATION TO THE WOODY FLORA OF WYANDOTTE COUNTY

Grasshopper Infestations. According to Morgan's account (1, p. 495), while other parts of the state suffered severe losses in 1866 to the invasion of the grasshopper, the Kansas City area escaped serious loss. In September 1874, however, the grasshoppers arrived in countless numbers. They destroyed every living herbaceous plant, ate the bark from the trees and shrubs, destroyed gardens, field crops and stripped the leaves from the trees.

In June 1875, another crop of grasshoppers incubated, remained about ten days and disappeared, but not before they had destroyed the newly planted crops. After they had disappeared, new crops were planted and due to the fact that a killing frost did not appear until November 11 of that year, a bountiful crop was harvested.

Rainfall. Droughts have seriously affected the vegetation of Kansas at various periods of her history. The eastern part of the state has not suffered to as great a degree as has the central and western sections. However, in the year 1901, a serious shortage of moisture occurred. According to the reports of the United States Weather



Bureau (2) at Kansas City, the annual precipitation for that year was only 24.76 inches. Naturally a lack of rainfall during the period of active growth is more destructive than one that occurs when plants are just beginning growth or have reached their maturity.

In the year 1901, May was an unusually dry month, only 0.75 of an inch of rain was recorded; June received 2.54; July 2.75; August 2.64; and September 1.84; while the average precipitation for the year was but 24.76 which was 11.30 inches below the 49-year average recorded by the bureau.

The driest year in the history of the weather bureau was more recent, the year of 1936. Only 21.51 inches of rain were recorded during the entire 12 months, June, July and August being particularly arid as only 0.51, 0.36, and 0.25 inches, respectively, of rainfall occurred. The six years of 1932 to 1937, inclusive, was the driest period of that length ever recorded, the average for the six years being but 23.92 inches or 12.14 inches below the normal average. To make the destruction more pronounced, temperatures were very high, ranging well above normal. This series of dry and hot years has had a very damaging effect upon the trees and shrubs of the area. In that time the soil dried to a very great depth which caused the loss of

many valuable trees.

This area was visited by a very destructive flood during the years of 1903 and 1904. Especially in 1903, the entire valley of the Kansas river was inundated, crops destroyed and buildings and bridges washed away.

An earlier flood occurred in 1844. The early spring of that year was very dry but the rains began in May and continued daily six weeks. The valley of the Kansas River in the Kansas City area was covered with 14 feet of water.

Although these floods undoubtedly killed many valuable trees and shrubs, it is possible that they were responsible for bringing in a greater number of species than were eliminated from this particular area.

To give an idea of the amount of rainfall for each month over a period of 51 years, the table below has been recorded.

Table 1. Monthly and annual precipitation 1889-1939.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
1889	1.05	1.91	1.61	2.80	3.98	3.11	3.06	4.64	7.08	1.57	2.38	0.14	38.33
1890	1.49	0.53	1.15	2.80	3.31	1.94	1.96	6.60	3.85	5.08	2.67	0.63	31.82
1891	2.20	2.08	3.82	3.62	6.85	6.19	2.34	6.25	0.36	0.85	0.95	1.54	37.05
1892	2.56	4.27	4.15	4.32	8.28	2.73	4.76	1.55	4.05	3.48	1.62	1.70	43.47
1893	0.27	1.73	2.75	4.28	6.67	5.06	4.24	1.78	3.48	0.16	1.28	0.43	32.13
1894	1.67	2.42	2.66	2.51	2.08	8.16	4.35	0.13	7.14	1.49	1.63	1.16	35.40
1895	0.32	0.59	0.95	1.19	3.88	7.72	9.64	7.21	1.43	0.12	3.05	5.12	41.22
1896	0.79	0.82	1.09	3.21	5.81	2.04	8.66	3.33	2.81	2.99	1.38	0.71	33.64
1897	2.66	1.65	2.37	2.57	1.24	7.09	4.29	3.60	1.38	0.75	1.25	1.36	30.21
1898	4.12	1.14	4.50	3.77	7.69	6.05	4.93	5.01	4.48	4.40	2.72	1.44	50.25
1899	0.28	1.54	2.95	3.31	5.10	3.16	5.57	5.20	1.66	0.80	1.62	1.33	32.52
1900	0.17	3.33	1.39	3.62	2.78	4.33	5.05	2.09	7.38	4.19	1.26	0.19	35.78
1901	0.45	1.43	3.69	4.20	0.75	2.54	2.75	2.64	1.84	2.20	0.60	1.67	24.76
1902	0.77	0.97	2.74	1.02	5.77	4.20	9.63	3.77	5.23	2.49	2.04	1.89	40.52
1903	0.50	1.89	1.92	2.78	7.67	2.53	3.10	6.40	6.12	3.86	1.61	1.02	39.22
1904	0.77	0.69	5.51	6.69	10.70	4.56	6.25	7.49	2.41	1.00	0.19	1.47	47.73
1905	0.82	1.70	3.68	2.04	5.36	1.60	7.35	4.47	10.90	2.34	1.94	0.35	42.55
1906	1.41	2.41	2.50	2.51	1.68	3.69	3.24	9.09	1.39	0.23	3.08	1.62	32.85
1907	4.54	0.91	2.50	1.84	4.13	6.16	7.53	3.80	1.64	2.25	1.32	0.97	37.59
1908	0.13	2.77	0.86	2.13	5.09	9.75	2.18	4.97	0.25	8.47	2.61	0.27	39.48
1909	1.25	1.75	1.50	4.20	5.77	6.01	6.34	0.42	6.78	0.97	2.86	2.47	40.32
1910	2.06	0.79	0.08	2.35	10.92	5.45	2.99	5.00	5.92	0.33	0.28	1.25	37.42
1911	0.61	6.76	1.06	3.03	1.10	0.33	1.44	2.31	6.17	4.06	2.17	2.74	31.78
1912	0.55	1.65	5.75	1.53	3.64	4.27	3.30	3.75	1.99	2.96	1.90	0.67	31.96
1913	0.65	3.07	2.24	2.05	4.45	2.81	3.86	0.93	4.14	5.64	1.80	3.35	34.99
1914	0.28	2.40	3.02	1.76	0.70	5.51	2.81	3.12	16.17	5.65	0.26	1.52	43.20
1915	2.53	2.87	1.24	2.33	11.00	7.88	6.67	4.46	5.88	0.35	0.87	1.12	47.20



Table 1 (concl.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	An'l
1916	5.52	0.57	4.46	4.16	5.36	5.51	0.38	3.82	4.96	4.17	2.83	0.34	42.08
1917	0.62	0.07	2.89	6.87	5.74	3.34	1.02	3.27	3.33	1.65	0.06	0.45	29.31
1918	0.94	1.53	0.48	2.87	3.77	1.50	1.82	2.45	7.29	4.00	4.61	2.98	34.24
1919	0.07	2.09	1.54	3.49	3.43	5.09	1.14	8.14	2.26	1.38	2.44	0.16	31.23
1920	0.35	0.07	4.32	5.02	3.06	6.63	9.78	3.11	4.30	1.87	1.73	0.89	41.13
1921	1.48	0.32	3.60	2.71	7.54	9.67	1.87	6.23	5.02	1.86	0.07	0.50	40.87
1922	0.61	1.49	5.73	4.06	2.83	1.13	4.66	0.81	4.50	2.31	3.17	0.22	31.52
1923	0.16	0.36	3.35	1.84	2.25	6.51	3.40	2.88	9.61	4.14	1.66	1.12	37.28
1924	1.20	1.16	2.08	1.38	3.60	7.87	3.41	3.12	4.68	1.01	1.16	2.76	33.43
1925	0.26	1.75	1.26	5.16	5.49	7.10	3.00	1.65	5.50	3.89	1.47	1.27	37.80
1926	1.56	2.46	2.21	2.52	1.53	1.55	6.59	3.87	6.33	4.27	1.08	0.96	34.93
1927	1.29	0.85	4.60	6.27	5.46	5.75	2.33	5.11	4.21	5.30	1.13	1.65	43.95
1928	0.21	2.77	0.36	2.32	2.34	5.43	2.64	8.79	3.12	2.64	8.55	1.83	41.00
1929	3.12	1.79	3.28	4.78	6.91	8.09	0.55	4.13	1.55	6.72	1.09	0.65	42.66
1930	2.56	0.80	0.67	3.13	4.39	3.78	1.39	3.48	2.61	2.10	2.70	0.95	28.56
1931	0.56	1.24	2.35	2.62	5.99	1.50	3.24	3.45	5.12	3.02	9.52	2.54	41.15
1932	1.12	0.63	2.30	2.50	2.63	2.73	2.57	4.90	1.36	2.43	1.49	2.41	27.07
1933	1.20	0.93	4.25	1.82	6.94	1.46	1.13	4.00	2.69	0.58	0.31	1.80	27.11
1934	0.49	0.81	0.65	2.40	3.14	1.71	2.26	1.44	6.44	1.88	5.40	0.53	27.15
1935	1.13	1.34	0.69	2.30	9.99	3.24	0.51	2.28	4.60	3.69	3.84	0.25	33.86
1936	1.17	0.55	0.08	1.89	4.16	0.51	0.36	0.25	7.99	2.01	0.19	2.35	21.51
1937	3.37	0.86	1.73	2.51	3.63	3.73	3.11	2.26	0.21	1.15	1.33	0.95	24.84
1938	1.89	0.90	3.06	1.87	7.64	5.22	3.82	6.78	1.84	0.70	2.70	0.55	36.97
1939	1.28	0.98	1.14	7.04	2.85	10.99	1.18	4.64	0.54	0.95	2.45	0.68	34.72
Ave.	1.32	1.58	2.44	3.14	4.94	4.60	3.74	3.93	4.35	2.60	2.08	1.30	36.03

From the data in table 1 it may be seen that the precipitation over a period of 51 years in the Kansas City area was as follows:

The smallest amount of average rainfall for any one year was 21.51 inches in 1936. The largest amount of average rainfall for any one year was 50.25 inches in 1898. The average amount of rainfall for a period of fifty one years is 36.03 inches. The month of lowest precipitation is December with a fifty one year average of 1.30 inches. The month of greatest precipitation for the fifty one year period is May with an average of 4.90 inches. It is interesting to note that beginning with the first month of the year that the rainfall increases to the month of June and then declines until the last month of the year, December. The most rainfall ever recorded for any one month in the fifty one year period was the month of September 1914, when 16.17 inches of rain fell. The smallest amount in any one month was 0.06 inches in November 1917.

Temperature. The eastern part of Kansas has experienced periods of extreme heat and cold. Temperatures have ranged from 22 degrees below zero in February 1899, to 113 degrees above zero in August 1936. In fact, the weather bureau records show that extremes of temperatures

apparently occur in cycles. Prior to the hot summer of 1901 there were several years in which temperatures were higher than normal. In 1901, there were 19 days with temperatures 100 degrees or above. After 1901, eight years elapsed before there were 19 days of 100 degrees temperature. Then followed four years of increasing temperatures until another peak was reached in 1913. During the summer of 1913, there were 13 days that were 100 degrees or higher. From 1914 to 1917 there were only four such days. In 1918, there were 16 days with readings of 100 degrees or more. During the next 11 years only four days of 100 degree temperatures were recorded.

The warmest period ever recorded by the weather bureau was from 1934 to 1939; 44 days in 1934, 19 in 1935, 53 in 1936, 8 in 1937, 12 in 1938, and 18 in 1939 reached or exceeded the 100 degree mark. The coolest summer was in 1915 when the temperature reached a high of 90 degrees only three times.

The prevailing direction of the wind is from the south; however, during five months of the year, November to March inclusive, the wind direction is from the northwest.

These periods of drought and high temperatures have caused the loss of many native trees and shrubs. This

condition is particularly noticeable in city parks, along the streets and in the hills of the rural districts.

Geology of the Region. Bennett (3, p. 50-59) studied the geology of Wyandotte County and established these points. Limestone occurs in all of the high hills and bluffs. In the Argentine bluffs there is a layer of arenaceous limestone 6-10 feet deep. Below this layer is found six feet of sandy shale; then 30 feet of gray, bluish-gray and flesh colored limestone.

At the mouth of the Kansas River black cherty limestone is found, little above the water's edge. In the northwest section of the city this rock is seen above the bed of Jersey Creek. At Quindaro, four miles up the river, it is ten feet higher. This limestone is high above the water line at Muncie. At Pomroy ten miles west of Kansas City there is an exposure of Garnett limestone.

Alluvial soils are found along the banks of streams at depths ranging from five to sixty feet. A strip of loess soil borders the Missouri ten to thirty feet deep. This soil is well adapted to the growing of fruits and vegetables. It is deposited upon a layer of limestone.

A clay loam composed of a black soil mixed with clay and sand which makes it friable is found on the more rolling parts of the area. The soil of the timber sections of

Wyandotte County is derived from red limestone. Sandy soils line the banks of the Missouri and Kansas rivers. In all there are more than 25 distinct types of soil in Wyandotte County.

The soil of this area is well adapted to the growth of most of the woody plants. Although there are rocky layers, sufficient soil has been deposited upon these rocks to provide an abundance for vegetative growth.

Physiography of the Region. Along the Missouri River are found high hills and bluffs which sometimes extend almost to the water's edge. At other points there are broad acres of farm land. These hills are densely wooded with trees and shrubs and furnish about the only area that has not been cleared for agriculture.

The valleys of the Kansas River are wider and afford fertile valleys that are used largely for truck farming. The hills along the Kansas River are not so high as those along the Missouri and not so densely wooded. The county has 20 percent bottom land, 80 percent upland. Twenty-five percent of these lands are timberland; 75 percent cultivated or grazing land. In the early days the entire county was heavily timbered, except the extreme northern part. Water may be obtained at depths varying from 20 to 50 feet.



FACTORS THAT MIGHT HAVE INFLUENCED THE INTRODUCTION  
OF NEW SPECIES

Rivers and Streams. The area is well supplied with running water, which provided an ample supply of moisture in the soil immediately along the stream even though rainfall may at times have been deficient. The subsidiary streams seldom go dry during the summer and along these streams vegetation thrives. The Kansas and Missouri rivers, with their tributaries, have undoubtedly been responsible for the introduction of many woody plants in the Wyandotte County area. Many of these started from seed, while others, such as willows, undoubtedly were started by the burial of stems and other vegetative portions. The fact that these rivers originate in western areas where rainfall is often deficient would explain why several drought resistant species are now native to this region.

Prevailing Winds. The prevailing winds are from the south, the southwest and the northwest. Their relation to the introduction of woody species is problematical.

## ANNOTATED LIST OF PLANTS RECORDED; ARRANGED BY FAMILIES

## Pinaceae. Pine Family

1. Abies concolor Lindl. & Gord. White Fir. Introduced.
2. Juniperus virginiana L. Red Cedar. Native. Abundant on south sides of limestone hills.
3. Juniperus chinensis pfitzeriana Spaetr. Pfitzer Juniper. Introduced; cultivated.
4. Picea abies (L) Karst. Norway Spruce. Introduced; cultivated.
5. Picea canadensis P. S. P. White Spruce. Introduced; cultivated.
6. Picea pungens Engelm. Colorado Spruce. Introduced.
7. Pinus banksiana Lamb. Jack Pine. Introduced; cultivated.
8. Pinus mugo mugus Zenari. Cultivated.
9. Pinus nigra Arnold. Austrian Pine. Introduced; cultivated.
10. Pinus ponderosa Dougl. Western Yellow Pine. Introduced.
11. Pinus sylvestris L. Scotch Pine. Introduced; cultivated.

12. Pseudotsuga taxifolia Brit. Douglas Fir. Introduced; cultivated.
13. Pine strobus L. White Pine. Introduced; cultivated.
14. Thuja occidentalis L. American Arbor-Vitae. Introduced; cultivated.
15. Thuja orientalis L. Chinese Arbor-Vitae. Introduced; cultivated.

Liliaceae. Lily Family

1. Smilax hispida Muhl. Smilax, greenbrier. Rich soil in woods. Abundant.

Anonaceae. Custard Apple Family

1. Asimina triloba (L) Dunal. Papaw. Native. Fairly abundant in shaded ravines.

Lauraceae. Laurel Family

1. Sassafras variifolium Ktze. Sassafras. Planted Forest Hill Cemetery.



Tilliaceae. Linden or Basswood Family

1. Tilia americana L. (T. glabra Vent.) Basswood.  
Native. Lowland woods along streams.

Ulmaceae. Elm Family

1. Celtis occidentalis L. Hackberry. Native. Rich, moist, well drained soil.
2. Ulmus alata Michx. Wahoo or Corky Elm. Planted Forest Hill Cemetery.
3. Ulmus americana L. American Elm. Native. Bottom lands, river banks.
4. Ulmus fulva Michx. Red Elm, Slippery Elm. River banks and bottoms; moist and fertile hillsides.  
Native.
5. Ulmus pumila L. Chinese Elm. Introduced; cultivated.

Berberidaceae. Barberry Family

1. Berberis thunbergii DC. Japanese Barberry. Cultivated.
2. Mahonia aquifolium Nutt. Hollygrape. Cultivated.  
Thrive in any soil.

Saxifragaceae. Saxifrage Family

1. Deutzia gracilis Sieb & Zucc. Deutzia. Introduced; ornamental shrub.
2. Deutzia scabra Thunb. Fuzzy Deutzia. Introduced as an ornamental shrub.
3. Hydrangea arborescens L. Hydrangea. Introduced as an ornamental shrub.
4. Hydrangea paniculata Sieb. Panicle Hydrangea. Introduced.
5. Philadelphus coronarius L. Sweet Mock Orange. Planted as an ornamental shrub.
6. Philadelphus falconeri Sarg. Star Mock Orange. Planted as an ornamental shrub.

Ranunculaceae. Buttercup Family

1. Clematis paniculata Thunb. Sweet Autumn Clematis. Woody climber; planted for its attractive flowers.
2. Clematis jackmani Th. Moore. Jackman Clematis. Not native but freely planted.

Araliaceae. Ginseng Family

1. Aralia spinosa L. Hercules Club. Introduced; not native.

Ginkgoaceae. Ginkgo Family

1. Ginkgo biloba L. Ginkgo. Introduced from China; planted occasionally. Huron Park, south of Library Building.

Moraceae. Mulberry Family

1. Maclura pomifera Scheid. Osage Orange. Considered native but probably introduced by the early settlers. Prefers rich soils.
2. Morus rubra L. Mulberry. Scattered throughout the area; prefers rich, moist soil.

Rutaceae. Rue Family

1. Zanthoxylum americanum Mill. Prickly Ash. Native shrub; found in moist, shaded situations; frequent

on rocky ledges of City Park.

Simarubaceae. Quassia Family

1. Ailanthus altissima (Miller) Swingle. Tree of Heaven. Introduced from China; frequently planted in Kansas City; endures smoke and dry places.

Salicaceae. Willow Family

1. Populus alba L. White or Silver Poplar. Not native but often planted.
2. Populus nigra italica Du Roi. Lombardy Poplar. Not a native tree but often escaping to vacant spaces and the banks of streams.
3. Populus balsamifera L. Eastern Cottonwood. Native tree; found throughout the area but prefers moist lowlands.
4. Salix vitellina penoula Reno. Weeping Golden Willow. A cultivated tree grown for its colorful branches.
5. Salix amygdaloides Anders. Peach-leaf Willow. Low places along the Missouri and Kansas rivers.
6. Salix babylonica L. Weeping Willow. Introduced as a specimen tree.

7. Salix discolor Muhlenb. Pussy Willow. Planted for its showy catkins; prefers moist, rich soil.
8. Salix longifolia Muhlenb. Sandbar Willow. Marshy bottoms and river banks; former beds of ponds and rivers.
9. Salix nigra Marsh. Black Willow. Banks of streams and ponds; sometimes found on higher ground.

Ebenaceae. Ebony Family

1. Diospyros virginia. L. Persimmon. Not so abundant; rich upland soil.

Solanaceae. Potato Family

1. Lycium halimifolium Mill. Matrimony Vine.  
Occasionally escaped from cultivation.
2. Lycium chinese Mill. Chinese Matrimony Vine. Cultivated variety.

Oleaceae. Olive Family

1. Chionanthus virginica L. Fringe-tree. Introduced; Forest Hill Cemetery.

2. Fraxinus americana L. White Ash. Rich moist loam soil; hills and lowlands.
3. Fraxinus pennsylvanica lanceolata Sarg. Green Ash. Rich moist loam soil; hills and lowlands.
4. Forsythia suspensa fortunei Rehd. Cultivated shrubs.
5. Forsythia intermedia spectabilis. Spaeth. Showy Border. Cultivated shrubs.
6. Forsythia viridissima Lindl. Greenstem Forsythia. Cultivated shrubs.
7. Ligustrum amurense Carr. Amur Privet. Cultivated shrubs.
8. Ligustrum obtusifolium regelianum Rehd. Regel Privet. Cultivated shrubs.
9. Ligustrum ovalifolium Hassk. California privet. Cultivated shrubs.
10. Ligustrum vulgare L. Common Privet. Cultivated shrubs.
11. Syringa japonica Decne. Japanese Lilac. Introduced as specimen.
12. Syringa vulgare L. Common Lilac. Cultivated shrub.

Bignoniaceae. Bignonia Family

1. Catalpa speciosa Warder. Hardy catalpa. Frequently

planted; prefers well drained soils with ample moisture.

Rosaceae. Rose Family

1. Cydonia japonica Pers. Japanese Quince. Cultivated shrub.
2. Cotoneaster horizontalis Decne. Rock Cotoneaster. Cultivated shrub.
3. Kerria japonica DC. Kerria. Cultivated shrub.
4. Rhodotypos kerriodes (Sieb. & Zucc.) Jet Bead. Cultivated shrub.
5. Spiraea Billardii Herincq. Cultivated shrub.
6. Spiraea bumalda Froebeli Rehd. Crimson Spirea. Cultivated shrub.
7. Spiraea prunifolia Sieb. & Zucc. Bridal wreath. Cultivated shrub.
8. Spiraea thunbergii Sieb. Thunberg Spirea. Cultivated shrub.
9. Spiraea vanhouttei Lour. Vanhoutte Spirea. Cultivated shrub.

Malaceae. Apple Family

1. Crataegus crusgalli L. Cockspur Haw. Introduced as

specimen tree; Forest Hill Cemetery.

2. Crataegus mollis (T & G) Scheele. Red Haw. Abundant in woods; moist, fertile soil.
3. Crataegus viridis L. (C. furcata Sarg.) Green Haw. Not native; Forest Hill Cemetery.
4. Malus ioensis (Wood) Bailey. Iowa Crabapple. Abundant in woods; moist, fertile soil.

#### Malvaceae. Mallow Family

1. Hibiscus syriacus L. Shrubby Althaea. Cultivated shrub.

#### Prunaceae.

1. Prunus hortulana Bailey. Wild Goose Plum. Native. Rich, moist soils.
2. Prunus serotina Ehrh. Black Cherry. Rich bottom lands but is found in various locations.
3. Prunus virginia L. Chokecherry. Woods under trees, moist, shady places.

#### Cassiaceae. Cassia Family

1. Cercis canadensis L. Redbud, Judas Tree. Native;



abundant in woods among moist uplands and creek bottoms.

2. Gleditsia triacanthos L. Honeylocust. Cultivated plants.
3. Gymnocladus dioica (L) Koch. Coffeytree. Cultivated plants.

#### Fabaceae. Pea and Bean Family

1. Caragana arborescens Lam. Pea Tree. Cultivated shrub.
2. Colutea arborescens L. Bladder-senna. Cultivated shrub.
3. Cladrastis lutea K. Koch. Yellow-wood. Planted; Forest Hill Cemetery.
4. Lespedeza bicolor Turcz. Bush Clover. Cultivated shrub.
5. Robinia hispida L. Rose Acacia. Planted; Forest Hill Cemetery.
6. Robinia pseudoacacia L. Black Locust. Prefers deep, rich soils but appears in thickets in scattered areas.
7. Sophora japonica L. Japanese Pagoda Tree; planted; Forest Hill Cemetery.

Grossulariaceae. Gooseberry Family

1. Ribes missourensis Nutt. Missouri Gooseberry.  
Abundant in woods, moist shady places.
2. Ribes odoratum Wendl. Flowering currant. Cultivated shrub.

Platanaceae. Planetree Family

1. Platanus occidentalis L. Sycamore. Native; hills and valleys, moist fertile soil. Often planted.

Rhamnaceae. Buckthorn Family

1. Ceanothus americanus L. New Jersey Tea. Open waste fields; endures dry situations.

Vitaceae. Grape Family

1. Ampelopsis cordata Michx. Liana. Cultivated shrubs.
2. Parthenocissus quinquefolia (L) Planch Virginia Creeper. Cultivated shrub.
3. Parthenocissus tricuspidata Planch. Boston Ivy.

Cultivated vine.

4. Vitis cinerea Engelm. Winter Grape. Woods and thickets; moist, rich soil.
5. Vitis cordifolia Michx. Frost Grape. Woods and thickets; moist, rich soil.
6. Vitis vulpina L. Riverbank Grape. Wood and thickets; moist, rich soil.

Celastraceae. Stafftree Family

1. Celastrus scandens L. Climbing Bittersweet. Woods and thickets.
2. Euonymus atropurpureus Jacq. Wahoo, Burning Bush. Native; abundant fence rows, woods.
3. Euonymus europaea L. E. Burning Bush. Cultivated shrubs.
4. Euonymus alatus Reg. Winged Euonymus. Cultivated shrubs.
5. Euonymus patens Rehd. Spreading Elm. Cultivated shrubs.

Aquifoliaceae. Holly Family

1. Ilex glabra Gray. Inkberry. Cultivated shrubs.

2. Ilex opaca Ait. American Holly. Cultivated shrubs.

Staphuleaceae. Bladdernut Family

1. Staphylea trifolia L. Bladdernut. Abundant along streams and moist places; woods and thickets.

Loganiaceae. Logania Family

1. Buddleia davidi French. Orange-eye Butterfly Bush. Cultivated.

Verbenaceae. Vervain Family

1. Vitex agnus-castus L. Chaste-tree. Cultivated.

Sapindaceae. Soapberry Family

1. Koelreuteria paniculata Laxm. Varnish or Goldenrain Tree. Introduced.

Magnoliaceae. Magnolia Family

1. Liriodendron tulipifera L. Tulip Tree. Occasionally

planted.

2. Magnolia soulangeana Soul. Saucer Magnolia. Planted.

Hamamelidaceae. Witch Hazel Family

1. Liquidamber styraciflua L. Sweet Gum. Occasionally planted.

Elaeagnaceae. Oleaster Family

1. Elaeagnus angustifolia L. Russian Olive. Planted but occasionally escaping.

Aesculaceae. Buckeye Family

1. Aesculus glabra Wild. Ohio Buckeye. Native. Moist soil in woods and uplands.
2. Aesculus hippocastanum L. Horse Chestnut. Not native but often planted.

Aceraceae. Maple Family

1. Acer negundo L. Boxelder, Ash-leaved Maple. Found

along streams and moist places.

2. Acer saccharum. Marsh. Hard Maple. Rich valleys and uplands; moist rocky slopes.
3. Acer saccharinum L. Soft or Silver Maple. Low rich bottom lands.
4. Acer saccharinum Wieri. Pax. Not native but planted as an ornamental shade tree.
5. Acer platanoides L. Norway Maple. Frequently planted as a shade tree.

#### Anacardiaceae. Sumac Family

1. Rhus canadensis Marsh. Fragrant Sumac. Cultivated variety.
2. Rhus cotinus L. Smoke Tree. Not native but sometimes planted as an ornamental.
3. Rhus glabra L. Smooth Sumac. Abundant along roadsides, in pastures and open places.
4. Rhus toxicodendron radicans L. Poison Ivy. Abundant in woods.
5. Rhus typhina laciniata Wood. Shredded Sumac. Planted as an ornamental.

## Juglandaceae. Walnut or Hickory Family

1. Carya alba L. Mockernut Hickory. Native. Hills and bluffs along the Kansas and Missouri rivers.
2. Carya cordiformis (Wang) K. Koch. Bitternut. Rich bottom lands; hills and upland; abundant.
3. Carya laciniosa (Michx.) Loud. Bigleaf Shagbark Hickory. Moist soil but is also found on hillsides.
4. Carya glabra (Mill) Britton. Pignut Hickory. Not so abundant but found in deep rich soils and on dry ridges and hillsides.
5. Carya pecan (Marsh) Engl. & Graebn. Pecan. Occasionally found in this area. Forest Hill Cemetery.
6. Carya ovata (Mill) K. Koch. Shagbark Hickory. Abundant on hills and in rich, moist lowlands.
7. Juglans nigra L. Black Walnut. Abundant. Rich bottom lands and fertile hillsides.

## Betulaceae. Birch Family

1. Betula lutea Michx. F. Silver or Gray Birch. Not native but frequently planted as an ornamental tree.

2. Betula pendula gracilis Rehd. Introduced as a specimen tree.
3. Corylus americana Walt. Native; grows in ravines along the Missouri river; not abundant.
4. Ostrya virginiana (Mill) K. Koch. Ironwood. Native; woods among other trees; shaded situations.
5. Alnus glutinosa Gaertn. Black Alder. Planted in Forest Hill Cemetery.

#### Fagaceae. Beech Family

1. Castanea americana Raf. American Chestnut. Occasionally planted.
2. Quercus alba L. White Oak. Abundant on hillsides and in fertile valleys.
3. Quercus rubra Du Roi. Red Oak. Very abundant in all native timber areas.
4. Quercus imbrica Michx. Shingle Oak, Laurel Oak. Native, grows best in fertile and moist soils.
5. Quercus coccinea Muench. Scarlet Oak. Infrequently found; Forest Hill Cemetery.
6. Quercus muhlenbergii Engelm. Chestnut or Chinquepin Oak. Abundant; rich and moist soils; lowlands and hillsides.



7. Quercus stellata Wang. Post Oak. Iron Oak. Dry and rocky hills.
8. Quercus velutina Lam. Black Oak. Native, dry and rocky hills and bluffs.
9. Quercus palustris Du Roi. Pin Oak. Not native, but frequently planted.

#### Cornaceae. Dogwood Family

1. Cornus alba sibirica Loud. Coral Dogwood. Introduced; planted as an ornamental.
2. Cornus asperifolia Michx. Boughleaf Dogwood.  
Abundant in the wooded hills and bluffs; shaded and moist situations.
3. Cornus obliqua Raf. Pale Dogwood. Abundant in woods and bluffs under the trees.
4. Cornus stolonifera Michx. Red-Osier Dogwood. Not native but frequently planted.

#### Rubiaceae. Madder Family

1. Cephalanthus occidentalis L. Buttonbush. Along ponds and in marshes; low places on interurban right-of-way and banks of Missouri river.

## Caprifoliaceae. Honeysuckle Family

1. Weigela rosea Lindl. Pink Weigela. Planted as an ornamental shrub.
2. Kolkwitzia amabilis Graebn. Beauty Bush. Planted as an ornamental shrub.
3. Lonicera fragrantissima Lindl. & Pext. Winter Honeysuckle. Planted as an ornamental shrub.
4. Lonicera heckrottii Rehd. Everblooming Honeysuckle. Liana; introduced.
5. Lonicera japonica Thunb. Japanese Honeysuckle. Introduced.
6. Lonicera morrowi A. Gray. Morrow Honeysuckle. Planted as an ornamental shrub.
7. Lonicera tatarica L. Tatarian Honeysuckle. Planted as an ornamental shrub.
8. Sambucus canadensis L. American Elder. Native; grows along roads and uncultivated fields.
9. Symphoricarpos racemosus Blake. Snowberry. Occasionally an escape from cultivation but most frequently planted.
10. Symphoricarpos vulgaris Michx. Coralberry, Buckbrush.

Found along roadsides, cut-over timber and waste places; poor, dry soil.

11. Viburnum carlesi Hemsl. Fragrant Viburnum. Planted as an ornamental.
12. Viburnum dentatum L. Arrow-wood. Planted as an ornamental shrub.
13. Viburnum lantana L. Wayfaring Tree. Planted as an ornamental shrub.
14. Viburnum molle Michx. Kentucky Viburnum. Planted.
15. Viburnum opulis L. European Cranberry-Bush. Planted as an ornamental.
16. Viburnum opulis roseum L. Common Snowball. Planted as an ornamental.
17. Viburnum prunifolium L. Black Haw. Not native to this area but occasionally planted. Forest Hill Cemetery.
18. Viburnum rufidulum Raf. Rusty Black Haw. Not native; specimen in Forest Hill Cemetery.

DICHOTOMOUS KEY OF TREES,  
SHRUBS AND LIANAS IN THE VICINITY  
OF  
KANSAS CITY, KANSAS

x. Leaves persistent, evergreen.

y. Leaves scale like or needle like.

A. Carpellate cones naked; berry leaves scale like  
or awl pointed.

a. Leaves all scale like, flat; cone with definite  
projections.

1. Branchlets not in vertical planes; cones  
scales thin; seeds winged.

Thuja occidentalis, American Arbor  
Vitae

1. Leaves bright green; branchlets in vertical  
plane; cones scales thick; seeds wingless.

Thuja orientalis, Chinese Arbor  
Vitae

aa. Leaves scale like or awl pointed; scale leaves  
round in cross section; cone a grayish blue  
berry.

1. Upright tree; leaf base decurrent, leaf glands

present.

Juniperus virginiana, Red Cedar

1. Shrub like with spreading branches. Foliage grayish green.

Juniperus chinensis, pfitzeriana.

Pfitzer Juniper

AA. Carpellate cones with woody scales; leaves all needle like.

- a. Needle leaves in fascicles of 2-5 on dwarf branches.

1. Fascicles with five leaves.

Pinus strobus, White Pine

1. Fascicles with 2-3 leaves.

2. Needles 10-25 cm. long.

3. Needles usually in 3's; 12-25 cm. long.

Pinus ponderosa, Western Yellow Pine

3. Needles usually in 2's; 10-25 cm. long.

Pinus nigra, Austrian Pine

2. Needles less than 10 cm. long.

3. Tree low growing; shrub like; twigs blackish.

Pinus mughus, Mugho Pine

3. Trees tall.

4. Leaves 4-8 cm. long; bark in upper part of tree orange.

Pinus sylvestris, Scotch Pine

4. Leaves 1-2.5 cm. long.

Pinus banksiana, Jack Pine

aa. Needle leaves solitary.

1. Needle leaves flat in cross section.

2. Leaves with petiole like extension at base.

Pseudotsuga taxifolia, Douglas Fir

2. Leaves expanded at base to form a disk shape adhering structure.

Abies concolor, White Fir

1. Needle leaves quadrangular in cross section; branches bearing prominent sterigmata.

2. Leaves forming approximately a 90 degree angle with the branch; either lustrous green or grayish blue.

Picea pungens, Blue Spruce

2. Leaf needles pointing forward.
3. Needles 8-25 mm. long; rigid, curved, acute.

Picea pungens, Blue Spruce

3. Needles glaucous, incurved; 5 cm. or less.

Picea canadensis, White Spruce

YY. Leaves broad evergreen.

- A. Leaves pinnately compound; leaflets 5-9, ovate to oblong-ovate, sinuately spiny-dentate.

Mahonia aquifolium, Oregon Hollygrape

AA. Leaves simple

- a. Leaves alternate; half evergreen with spreading branches; leaves suborbicular; flowers pinkish.

Cotoneaster horizontalis, Rock

Cotoneaster



aa. Leaves opposite.

1. Plant a small tree; branches spreading; leaves elliptic to elliptic-lanceolate, with remote spiny teeth.

Ilex opaca, American Holly

1. Plant a shrub.

2. Branches upright; leaves obovate to lanceolate, with few obtuse teeth near the apex, or entire.

Ilex glabra, Inkberry

2. Leaves broad elliptic or obovate; crenate-serrate.

Euonymus patens, Spreading Euonymus

XX. Leaves deciduous.

A. Leaves compound.

a. Leaves opposite.

1. Shrubs.

2. Leaves palmately compound; leaflets 5-7 entire or with few coarse teeth; branches 4-angled.

Vitex Agnus-castus, Chaste Tree

2. Leaves pinnately compound; leaflets usually 7, serrate with entire bases, branches not 4-angled.

Sambucus canadensis, American Elder

1. Lianas.

2. Leaflets 3-5, ovate, entire; flowers purple, usually 3.

Clematis jackmani

2. Leaflets 3-5, ovate, entire, sometimes lobed; flowers white, paniculate.

Clematis paniculata

1. Trees with single stems, 15 feet or more tall at maturity.

2. Leaves palmately compound.

3. Leaflets large, 5-7, mostly crenate-serrulate; buds resinous.

Aesculus hippocastanum, Horse Chestnut

3. Leaflets usually 5, finely serrate; buds

smooth, light brown, not resinous.

Aesculus glabra, Ohio Buckeye

2. Pinnately compound.

3. Leaflets 3-5.

4. Leaflets 3, serrulate; twigs green; fruit a bladder-like pod.

Staphylea trifolia, Bladdernut

4. Leaflets 3-5, entire below the middle, coarse toothed above; fruit a narrow, flat-winged samara.

Acer negundo, Box Elder

3. Leaflets 7-9.

4. Leaflets entire or obscurely serrate; fruit a broad, flattened winged samara, the wing attached at the tip of the seed.

Fraxinus americana, White Ash

4. Leaflets irregularly serrate, green on both sides; fruit a broad, flattened samara, the wing extending part way down

the side of the seed.

Fraxinus pennsylvanica lanceolata,

Green Ash

aa. Leaves alternate.

1. Trees with single trunks taller than 15 feet at maturity.

2. Leaves often twice pinnately compound.

3. Branches armed with thorns, prickles or spines.

4. Spines when present long and branching and representing modified branches; leaflets 18 or more, lanceolate-oblong, remotely crenulate-serrate.

Gleditsia triacanthos, Honey Locust

4. Branches armed with stout prickles; leaflets ovate, numerous, serrate.

Aralia spinosa, Hercules Club

3. Branches without thorns.

4. Leaflets 40 or more, 2.5 to 5 cm. long; entire.

Gymnocladus dioica, Coffee Tree.

4. Leaflets 7-15, 3-8 cm. long, coarsely and irregularly crenate-serrate.

Koelreuteria paniculata, Goldenrain  
or Varnish Tree

2. Leaves once pinnately compound.

3. With prickles or spines.

4. Armed at nodes with stipular spines; leaflets 7-19 elliptic or ovate; fruit a pod.

Robinia pseudoacacia, Black Locust

4. Often armed above the nodes with branching spines that are modified stems; fruit a long pod.

Gleditsia triacanthos, Honey Locust

3. Not armed, without thorns or prickles.

4. Leaflets usually less than 9.

5. Bark loose, shredding in long strips.

6. Leaflets large, usually 5, twigs gray or reddish; nut rounded at base.

Carya ovata, Shagbark Hickory

- 6. Leaflets 7-9, usually 7; twigs buff or orange; nut usually pointed at both ends.

Carya laciniosa, Big Shagbark Hickory

- 5. Bark not shredding.

- 6. Leaflets 5-7, sometimes 9; terminal buds ovoid, red-brown pilose; petioles pubescent; nut 4-ridged.

Carya alba, Mockernut Hickory

- 6. Leaflets 5-7; terminal buds dome shaped, smooth or finely downy; nut obscurely 4-ridged.

Carya glabra, Pignut Hickory

- 4. Leaflets usually 9 or more.

- 5. Bark of last year's and of older wood green; leaflets 7-17, opposite; flowers white or pinkish.

Sophora japonica, Pagoda Tree

- 5. Bark of older wood not green; leaflets 7-41.

6. Leaflets 11-41, entire with 2 or more glandular teeth at the base of the leaflet.

Ailanthus altissima, Tree of Heaven

6. Leaflets 7-15, serrate throughout.  
7. Pith chambered; leaflets 13-23, yellow-green; petioles pubescent.

Juglans nigra, Black Walnut

7. Pith solid.

8. Leaflets 7-9, alternate; buds covered by the base of the petiole

Cladrastis lutea, Yellowwood

8. Leaflets opposite; pith angled.

9. Buds brownish, plump; kernel sweet, edible.

Carya olivaeformis, Pecan Hickory

9. Buds sulphur-yellow, flattish; kernel bitter.

Carya cordiformis, Bitternut Hickory



1. Plant low growing or climbing; not a tree.

2. Shrubs.

3. Branches with prickles or hispid bristles.

4. Internodes unarmed; leaflets 5-11,  
crenulate.

Zanthoxylum Americanum, Prickly Ash

4. Internodes hispid; leaflets 7-13, entire.

Robinia hispida, Rose Acacia

3. Branches unarmed.

4. Fruit a berry-like drupe; flowers in  
dense terminal panicles. Rhus spp.

5. Twigs densely velvety, hairy; leaflets  
deeply and laciniately lobed.

Rhus typhina laciniata, Shredded Sumac

5. Twigs glabrous or pubescent.

6. Leaflets 11-31, lanceolate-oblong,  
acuminate.

Rhus glabra, Smooth Sumac

6. Leaflets 3.

7. Branches aromatic, pubescent;  
leaflets crenate-serrate, pubescent

Rhus canadensis, Fragrant Sumac

7. Leaflets sparsely and coarsely  
toothed, sparingly pubescent or  
glabrous.

Rhus toxicodendron radicans, Poison  
Sumac (Poison Ivy)

4. Fruit a pod.

5. Leaflets 3, terminal obovate, lateral  
ovate, entire.

Lespedeza formosa, Bush Clover

5. Leaflets 8-13.

6. Fruit an inflated pod; flowers yellow,  
racemosa.

Colutea arborescens, Bladder Senna

- 6. Fruit a linear pod; flowers small,  
yellow, fascicled.

Caragana arborescens, Pea Tree

2. Lianas.

- 3. Leaves palmately compound.

- 4. Leaves partly 3-foliate, and partly  
simple.

Parthenocissus tricuspidata, Boston  
Ivy

- 4. Leaflets 5, crenate-serrate.

- 5. Branches and leaflets pubescent.

Parthenocissus quinquefolia hirsuta,  
Wild Virginia Creeper

- 5. Branches and leaflets smooth.

Parthenocissus quinquefolia, Virginia  
Creeper

- 3. Leaves pinnately compound.

- 4. Leaflets 3, sparsely and coarsely toothed;

berries white.

Rhus toxicodendron radicans, Poison  
Ivy, Poison Sumac

4. Leaflets more than 3, short stalks,  
margins entire; flowers purple lilac.

Wisteria frutescens, Wisteria

AA. Leaves simple.

- a. Leaves whorled or opposite.

1. Leaves whorled.

2. Plant a tree; leaves heart shaped, entire;  
fruit a two-celled cylindrical capsule.

Catalpa balsamifera, Hardy Catalpa

2. Plant a shrub; flowers creamy white in  
globose heads.

Cephalanthus occidentalis, Button Bush

1. Leaves opposite.

2. Plant a woody vine, twining, scrambling or  
tendrill producing.

3. Leaves entire.

4. Leaves elliptic to elliptic-oblong,

3-6 cm. long, acute; flowers in elongated peduncled spikes; purple outside, yellow within.

Lonicera heckrotti, Everblooming  
Honeysuckle

4. Leaves ovate to oblong-ovate, 3-8 cm. long, acute to short acuminate; flowers white changing to yellow.

Lonicera japonica, Japanese Honey-suckle

3. Leaves toothed.

4. Vines attached by the twining of the main stem.

5. Fruit yellow with crimson seeds; flowers in panicles.

Celastris scandens, Waxwork

5. Fruit bluish or greenish blue; flowers on loose, slender, stalked cymes.

Ampelopsis cordata

4. Vines attached by tendrils.
  5. Tendrils modified stipules, originating in leaf base; stems green, prickly.  
Smilax hispida, Greenbrier, Smilax
  5. Tendrils modified stems or blossom clusters; stems not prickly. *Vitis* spp.
  6. Young stems round in cross section, glabrous. Fruit glaucous.  
Vitis cordifolia, Frost Grape
  6. Young stems angled, as seen in cross section.
    7. Young stem glabrous; leaves commonly 3-lobed and coarsely dentate.  
Fruit covered with dense bloom.  
Vitis vulpina, Riverbank Grape
    7. Young stem tomentose; leaves cobwebby pubescent beneath; 3-lobed.  
Fruit black.  
Vitis cinerea, Winter Grape

2. Shrubs or trees.

3. Trees.

4. Leaves lobed. *Acer* spp.

5. Leaves cleft, i. e., indentations deep and acute; wings of samara form an angle of about 90 degrees.

6. Lobes with a jagged margin.

*Acer saccharinum*, Soft or Silver Maple

6. Lobes with a fringed margin.

*Acer saccharinum* var. *Wieri*, Cutleaved Soft Maple.

5. Leaves obtusely lobed, sinuses neither deep nor acute.

6. Sap of petioles milky; wings of samara diverging to form an angle of about 180 degrees.

*Acer platanoides*, Norway Maple

6. Petioles without milky sap; wings of samara converging until nearly parallel; trunk dark.

*Acer saccharum*, Hard Maple



4. Leaves not lobed.

5. Leaves entire; flowers in showy  
panicles.

Syringa japonica, Japanese Lilac

5. Leaves serrulate; petioles usually  
grooved.

6. Buds and twigs densely rusty  
tomentose.

Viburnum rufidulum, Rusty Black Haw

6. Buds pubescent; twigs covered with a  
light bloom, not tomentose.

Viburnum prunifolium, Black Haw

3. Shrubs.

4. Leaves lobed.

5. Stems solid at internodes; petioles  
grooved.

6. Flowers in terminal cymes.

Viburnum opulus, Cranberry Bush

6. Flowers in terminal globose clusters;  
sterile.

Viburnum opulus roseum, Snowball

5. Stems hollow at internodes; bark  
yellowish.

Forsythia suspensa fortunei, Fortune  
Forsythia

4. Leaves not lobed.

5. Leaves toothed.

6. Stems hollow at least at the inter-  
nodes.

7. Bark of older growth yellow;  
flowers bright yellow. Forsythia  
spp.

8. Bark of younger growth green.

Forsythia viridissima, Green Stemmed  
Goldenbell

8. Bark of younger growth resembling  
that of older growth in color.

Forsythia intermedia spectabilis,

Showy Border Golden Bell

7. Bark of older growth gray; stems hollow throughout. *Deutzia* spp.

8. Stems slender; leaves glabrous.  
*Deutzia gracilis*, Slender *Deutzia*

8. Stems stout; leaves rough  
(scabrous).

*Deutzia scabra*, Fuzzy *Deutzia*

6. Stems with solid pith.

7. Stems not round in cross section,  
either angled by longitudinal lines  
or ridges or by corky wings.

*Euonymus* spp.

8. Stems with corky ridges.

*Euonymus alatus*, Winged *Euonymus*

8. Stems with longitudinal lines;  
no corky ridges.

9. Leaves small, 3-8 cm. in length,

margin cuneate-serrate.

Euonymus europaea, European Euonymus

9. Leaves larger, 4-12 cm. margin  
serrulate.

Euonymus atropurpurea, Wahoo or Burning Bush

7. Stems round in cross section.

8. Bark peeling in narrow strips.  
Flowers creamy white, fragrant,  
rather large borne in few  
flowered clusters. *Philadelphus*  
spp.

9. Leaves ovate to ovate oblong  
4-8 cm. long.

Philadelphus coronarius, Sweet Mock  
Orange

9. Leaves ovate-lanceolate, 3-8 cm.  
long.

Philadelphus falconeri, Star Mock  
Orange

8. Bark not peeling.

9. Leaf margins coarsely toothed.

Flower clusters large and showy,  
5-8 in. in diameter.

10. Bud scales 2. *Viburnum* spp.

11. Branches glabrous.

12. Leaves hairy on lower  
side along veins.

Viburnum dentatum, Arrowwood

12. Leaves tomentose on  
lower side throughout.

Viburnum molle, Kentucky Viburnum

11. Branches pubescent.

12. Leaf margins regularly  
toothed.

Viburnum lantana, Wayfaring Tree

12. Leaf margin irregular-  
ly toothed, i. e.,  
teeth not all of same

size.

Viburnum carlesii, Fragrant Viburnum

- 10. Bud scales several, at least more than 2. Flowers often imperfect. Hydrangea spp.

- 11. Small shrub; flowers in flat cymes.

Hydrangea arborescens, Smooth

Hydrangea

- 11. Coarse shrub, flowers in elongated cymes.

Hydrangea paniculata, Panicle

Hydrangea

- 9. Leaf margins finely toothed.

Flower clusters of rather small flowers.

- 10. Flowers borne in rather dense clusters.

- 11. Flowers pink, rather large, borne in pairs which combine to form

large clusters.

Kolkwitzia amabilis, Beauty Bush

- 11. Flowers lilac colored,  
small, many to each  
cluster.

Buddleia davidi, Orange-eye Butter-  
fly Bush

- 10. Flowers solitary or in pairs.

- 11. Stems glabrous; flowers  
white.

Rhodotypus kerrioides, Jet Bead

- 11. Stems hairy, with two  
longitudinal rows of  
hairs. Flowers pink.

Weigela rosea, Pink Weigela

- 5. Leaves entire.

- 6. Stems hollow.

- 7. Leaves ovate to ovate-lanceolate,  
cordate; flowers white, changing



to yellow.

Lonicera tatarica, Tatarian Honeysuckle

- 7. Leaves elliptic to ovate-oblong, rounded at base, pubescent on both sides.

Lonicera morrowi, Morrow Honeysuckle

- 6. Stems with solid white pith.

- 7. Superposed bud present. Leaves stiff and leathery, dark green above, gray beneath; flowers before the leaves.

Lonicera fragrantissima, Winter Honeysuckle

- 7. Leaves with axillary buds only.
- 8. Branches slender, one-eighth inch or less in diameter.
- 9. Leaves small, not exceeding 6 cm. in length; veins extending to margin of leaf.

10. Flowers in terminal clusters.

11. Fruit white.

Symphoricarpos racemosus, Snowberry

11. Fruits not white, bluish  
to bluish black.

Ligustrum spp.

12. Branches smooth.

13. Leaves oblong-ovate  
to lanceolate;  
branches spreading.

Ligustrum vulgare, Common Privet

13. Leaves elliptic;  
branches erect.

Ligustrum ovalifolium, California  
Privet

12. Branches pubescent.

13. Leaves elliptic to  
oblong; branches  
upright, nearly  
pyramidal.

Ligustrum amurense, Amur Privet

13. Leaves oblong to  
obovate; branches  
spreading hori-  
zontally.

Ligustrum ibota-regelianum, Regal  
Privet

9. Leaves larger, 4-12 cm. in  
length; lateral veins never  
reaching the margins. *Cornus*  
spp.

10. Pith brown.

11. Leaves rough above,  
woolly beneath; branches  
red.

Cornus asperifolia, Rough Leaf Dog-  
wood

11. Leaves smooth above,  
glaucous beneath.

Cornus olivacea, Pale Dogwood

10. Pith white.

11. Leaves ovate to elliptic;  
6 pairs veins; twigs  
coral red.

Cornus alba-sibirica, Coral Dogwood

11. Leaves ovate to oblong-  
lanceolate; 5 pairs veins;  
twigs dark, blood red.

Cornus stolonifera, Red Osier Dog-  
wood

8. Twigs stout, over one-eighth inch  
in diameter.

9. Leaves much broader in basal  
than in apical portion; buds  
squarish, terminal bud often  
lacking.

Syringa vulgaris, Common Lilac

9. Leaves elliptic to obovate,  
never broader at base than  
towards apex, flowers white.

Chionanthus Virginica, Fringe Tree

aa. Leaves alternate.

1. Trees.

2. Stipules encircling twig at nodes; older portions with complete stipular rings at each node.

3. Bark peeling off in flakes; trunk whitish; flowers and fruits in globose clusters.

Platanus occidentalis, Buttonwood

3. Bark not peeling off.

4. Leaves entire; buds hirsute.

Magnolia soulangeana, Saucer Magnolia

4. Leaves lobed; buds glabrous.

Liriodendron tulipifera, Tulip Tree

2. Nodes not encircled by stipules or stipular rings.

3. Branches armed with thorns.

4. Leaves silvery white; twigs often covered with waxy scales.

Elaeagnus angustifolia, Russian Olive

4. Leaves green.
5. Leaves serrate; fruit a pome; thorns few. *Crataegus* spp.
6. Leaves 4-5 lobed, doubly serrate.  
*Crataegus mollis*, Red Haw
6. Leaves not lobed, sharply serrate, base entire.  
*Crataegus crus-galli*, Cockspur Thorn
5. Leaves entire, thorns numerous.  
*Maclura pomifera*, Osage Orange
3. Branches without thorns.
4. Leaves 2-ranked, i. e., with the third above the first.
5. Leaves with 3-5 large veins at base.
6. Leaves entire, heart shaped.  
*Cercis canadensis*, Redbud
6. Leaves saw-toothed at margin.
7. Leaves broadly egg shaped, about as

broad as long.

Tilia americana, Basswood

7. Leaves about twice as broad as long; bark conspicuously ridged.

Celtis occidentalis, Hackberry

5. Leaves with one distinct midvein extending from base to apex.

6. Bark peeling off in papery or leathery sheets.

7. Leaves ovate to oblong-ovate; bark yellowish.

Betula lutea, Yellow Birch

7. Leaves rhombic-ovate, laciniate; bark white.

Betula pendula, European Weeping Birch

6. Bark not peeling off in sheets.

7. Bark smooth; twigs slender, flowers

in catkins.

Ostrya virginiana, Ironwood

7. Bark ridged.

8. Leaves lobed, serrate.

Morus rubra, Mulberry

8. Leaves doubly serrate, very  
oblique at base. *Ulmus* spp.

9. Buds smooth, fruit a samara,  
notched at apex.

Ulmus americana, American Elm

9. Buds hairy; fruit a samara, not  
notched at the apex.

Ulmus fulva, Red Elm

4. Leaves more than 2-ranked.

5. Leaves entire.

6. Leaves lanceolate, silvery gray;

twigs partly covered with waxy scales.

Elaeagnus angustifolia, Russian

Olive



6. Leaves green.

7. Leaves and buds clustered at tip of  
twig; pith 5-angled.

Quercus imbricaria, Shingle Oak

7. Leaves evenly spaced on twig.

8. Buds dark brown, hairy; leaves  
broadest in upper half.

Asimina triloba, Papaw

8. Buds not tomentose; leaves broad-  
est in middle; veins not reaching  
margins.

Diospyros virginiana, Persimmon

5. Leaves not entire.

6. Leaves, at least some of them, lobed.

7. Leaves variable, some lobed, some  
entire.

8. Margins serrate; fruit dark purple.

Morus rubra, Red Mulberry

8. Margins entire; fruit bluish-black.

Sassafras variifolium, Sassafras

7. Leaves all lobed.

8. Leaves and buds clustered at tip of twig. Quercus spp.

9. Lobes smooth, not bristle tipped.

10. Lobes 3-5, sinuses deep, glabrous above, brown tomentose beneath; nut oval to oblong, enclosed by one-third to one-half by the cup.

Quercus stellata, Post or Iron Oak

10. Lobes usually more than 5.

11. Lobes commonly 7, nearly of same size; nut oblong-ovoid, enclosed one-fourth by cup.

Quercus alba, White Oak

- 11. The terminal lobe largest;  
nut broad ovoid, cup of  
nut fringed enclosing  
one-third of nut.

Quercus macrocarpa, Bur Oak

- 9. Lobes bristle tipped.
- 10. Buds mostly glabrous.
- 11. Leaves oval to obovate,  
13-23 cm. long; acorn  
large, cup shallow.

Quercus rubra, Red Oak

- 11. Leaves oval to obovate,  
5-10 cm. long; acorn  
small, nut nearly round,  
cup only enclosing base  
of nut.

Quercus palustris, Pin Oak

- 10. Buds pubescent.
- 11. Leaves ovate to oblong,  
often 7-lobed, mucronate;

buds pubescent throughout, angled; nut small, cup enclosing about one-third to one-half of nut.

Quercus velutina, Black Oak

11. Leaves broadly oval or obovate; buds not angled, only upper one-half pubescent; cup thin, nut taper pointed or round.

Quercus coccinea, Scarlet Oak.

8. Leaves and buds not clustered at tip of twig.

9. Leaves distinctly hairy beneath.

10. Leaves ovate to sub-orbicular.

Populus alba, White Poplar

10. Leaves ovate-oblong to elliptic-obovate.

Malus ioensis, Prairie Crab

9. Leaves glabrous.

10. Leaves fan shaped, usually  
bilobed.

Ginkgo biloba, Ginkgo

10. Leaves 3-7 lobed, serrate.

Liquidamber styraciflora, Sweet Gum

6. Leaves toothed.

7. Twigs dark brownish, bitter.

Prunus spp.

8. Petiole without glands; veins on  
lower side, downy.

Prunus hortulana, Wild Goose Plum

8. Petiole with disk-like or tooth-  
like glands.

9. Marginal teeth uncurved.

Prunus serotina, Black Cherry

9. Marginal teeth pointing forward.

Prunus virginiana, Choke Cherry

7. Twigs not dark brown.

8. Twigs greenish gray; buds elongated; pith 5-angled.

*Populus* spp.

9. Trees spire shaped; branches ascending.

*Populus nigra italica*, Lombardy

Poplar

9. Trees spreading.

*Populus balsamifera*, Eastern Cottonwood

8. Twigs otherwise light brown to yellowish.

9. Buds stalked, leaves doubly serrate.

*Alnus glutinosa*, Alder

9. Buds sessile, covered by a single hood-like scale.

*Salix* spp.

10. Stipules usually present.

11. Bark yellowish.

12. Branches erect;  
stipules somewhat  
heart shaped.

Salix nigra, Black Willow

12. Branches drooping;  
stipules lanceolate.

Salix alba vitellina, Golden Willow

11. Bark brownish green;  
leaves glabrous above,  
glaucous beneath.

Salix discolor, Pussy Willow

10. Stipules usually wanting.

11. Twigs red brown or orange.

Salix amygdaloides, Peachleaf Willow

11. Twigs usually purplish  
red.

Salix longifolia, Sandbar Willow

1. Shrubs or lianas.
2. Leaves toothed.
3. Leaves 3-5 lobed.
4. Lobes coarsely dentate.
5. Leaves suborbicular; flowers greenish white; fruit glabrous, purplish, sub-acid.

Ribes missouriensis, Wild Gooseberry

5. Leaves ovate to orbicular, coarsely dentate; flowers yellow, stems not spiny; fruits globose, black.

Ribes odoratum, Golden Currant

4. Lobes with acutish teeth.
5. Leaves ovate or rhombic-ovate; 3-veined; flowers solitary, white, purple or violet.

Hibiscus syriacus, Shrubby Althaea

5. Leaves rhombic-ovate to obovate, entire below the middle; flowers pure



white in many-flowered umbels.

Spiraea van houttei, Van Houttei

Spiraea

3. Leaves not lobed.

4. Branches armed with thorns or spines.

5. Spines simple, modified leaves; leaves unequal, obovate to spatulate; fruit ellipsoid, bright red.

Berberis thunbergi, Japanese Bar-

berry

5. Spines long, slender, modified stems; leaves ovate to oblong; fruit globose to ovoid, large, flowers scarlet to red.

Cydonia japonica, Japanese Quince

4. Branches unarmed.

5. Branches angled.

6. Leaves small, 3-5 cm. long, elliptic, acute at ends; twigs slender; flowers white, buttonlike.

Spiraea prunifolia, Bridal Wreath

- 6. Leaves small, 2-4 cm. long, linear-lanceolate, yellowish green, sharply serrate; twigs slender; flowers white.

Spiraea thunbergii, Thunberg Spirea

- 5. Branches not angled.

- 6. Leaves distinctly 3-nerved.

- 7. Leaves ovate to oblong-obovate; flowers small, paniculate.

Ceanothus americanus, New Jersey Tea

- 7. Leaves elliptic to elliptic-lanceolate; flowers smaller than in *C. americanus*.

Ceanothus ovatus, New Jersey Tea

- 6. Leaves not distinctly 3-nerved.

- 7. Flowers yellow or colorless.

- 8. Flowers yellow, solitary; branches green striped.

Kerria japonica, Kerria

8. Flowers colorless, in catkins;  
branches not green striped.

Corylus americana, Hazelnut

7. Flowers rose or crimson.

8. Leaves ovate-oblong; flowers  
bright crimson in corymbose  
clusters.

Spiraea bumalda froebeli, Crimson  
Spirea

8. Leaves oblong-lanceolate;  
flowers bright rose in paniculate  
clusters.

Spiraea billiardii, Billiard Spirea

2. Leaves with entire margins.

3. Shrub of round bushy habit, 5 m.; leaves  
oval to obovate, 3-8 cm. long, rounded or  
slightly emarginate at apex; flowers  
purplish in plummy masses.

Rhus cotinus, Common Smoke-tree

3. Spreading shrubs with arching or prostrate branches.

4. Leaves rhombic-ovate to ovate-lanceolate, 3-8 cm. long, bright green; flowers purple, small, not spiny.

Lycium chinense, Chinese Matrimony

Vine

4. Leaves oblong-lanceolate to lanceolate, 2-6 cm. long, grayish-green; usually spiny; flowers dull lilac-purple.

Lycium halimifolium, Common

Matrimony Vine

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